

20. A channel according to Claim 18 wherein the other cation channel is a P2X ATP-gated channel.

21. A channel according to Claim 20 wherein the other cation channel sub-unit of P2X2 ATP-gated channel sub-unit.

22. A nucleic acid encoding a proton-gated cation channel as defined in Claim 16.

23. A nucleic acid encoding a proton-gated cation channel having the amino acid sequence of SEQ ID NO:1 or a variant of that sequence having at least 85% identity therewith and another cation channel sub-unit as defined in Claim 21.

24. A recombinant vector comprising a nucleic acid as defined in Claim 22.

25. A recombinant vector comprising a nucleic acid as defined in Claim 23.

26. A recombinant host cell comprising the nucleic acid of Claim 22.

27. A recombinant host cell comprising the nucleic acid of Claim 23.

28. A method of producing a proton-gated cation channel, which comprises the steps of:

incubating the host cell of Claim 26 under conditions which allow the DNA sequence to be expressed, and isolating the protein from the host.

29. A method of producing a proton-gated cation channel, incubating the host cell of Claim 27 under conditions which allow the DNA sequence to be expressed, and isolating the protein from the host.

30. A method for screening compounds useful as proton-gated cation channel ligands, which comprises the steps of:

contacting a cell bearing at its surface a channel as defined in Claim 16 with said compounds; and
selecting the compounds that bind to said channel as ligands.

31. A method of screening compounds useful as proton-gated cation channel ligands, which comprises the steps of:

contacting a cell bearing at its surface a channel as defined in Claim 21 with said compounds; and
selecting the compounds that bind to said channel as ligands.

32. A composition or kit for screening compounds useful as proton-gated cation channel ligands, which comprises a cell population expressing a channel as defined in Claim 16 at its surface, and auxiliary components assisting the binding and the detection of the binding of said ligands to said channel.

33. A composition or kit for screening compounds useful as proton-gated cation channel ligands, which comprises a cell population expressing a channel as defined in Claim 21 at its surface, and auxiliary components assisting the binding and the detection of the binding of said ligands to said channel.--

add B1

Remarks

The above amendments are being made to eliminate multiple dependencies in the claims and incorporate new claims 16-33 into the application.

No fee is believed necessary to enter this amendment. However if a fee is necessary, please charge Deposit Account 17-0055.